

## CLAIMS

1. An instrument for drilling root canals, specifically a flexible drilling instrument designed to be mechanically driven by an electric motor, said instrument (10) comprising an end section (11) to be mounted in a chuck driven by said electric motor, a proximal region (14) adjacent to said end section (11), a central region (13) extending from said proximal region, and a distal region (12) extending from said central region (13) for guiding the instrument through the root canal, characterized in that the envelope (20) of the proximal, central and distal regions has a generally inverted cone shape, with the widest portion corresponding to the distal region (12) and the smallest portion corresponding to the proximal region (14).
2. An instrument according to claim 1 characterized in that said envelope (20) has a truncated cone shape and comprises a vortex angle ( $\Phi$ ) that is identical along its entire length.
3. An instrument according to claim 1 characterized in that said envelope (20) consists of several juxtaposed sections (C, D, E, F) extending axially from one another, each of said sections having a truncated cone shape and each of said truncated cones comprising a different vortex angle ( $\Phi_1$ ,  $\Phi_2$ ,  $\Phi_3$ , and  $\Phi_4$ ), with the widest vortex angle ( $\Phi_1$ ) corresponding to the distal region (12), the smallest vortex angle ( $\Phi_4$ ) corresponding to the proximal region (14), and the intermediate vortex angles ( $\Phi_2$ ,  $\Phi_3$ ) corresponding to the central region (13)..
4. An instrument according to claim 1 characterized in that the angle of the envelope (20) relative to the axis of the instruments decreases progressively and regularly from the distal region (12) to the proximal region (14).
5. An instrument according to claim 1 characterized in that it comprises a junction region (17) between said proximal region (14) and said end section (11), said junction region comprising a partial break calibrated to split apart when a predetermined drive torque is applied.
6. An instrument according to claim 5 characterized in said partial break consists of a portion of reduced section.

7. An instrument according to claim 5 characterized in that said partial break consists of a modification in the type and/or structure of material used for the instrument.
8. An instrument according to claim 5 characterized in that said partial break consists of at least one peripheral notch (18) formed in said junction region (17).
9. An instrument according to claim 5 characterized in that said predetermined drive torque corresponds to the torque at which the distal region of the instrument breaks.
10. An instrument according to claim 1 characterized in that said distal region (12) comprises a rounded tip.
11. An instrument according to claim 1 characterized in that said central region (13) is polygonal and comprises hollowed flutes (16) with sharp cutting edges that are generally helical.
12. An instrument according to claim 1 characterized in that said central region (13) is polygonal and comprises flutes (16) with blunt edges that are generally helical.
13. An instrument according to claim 8 characterized in that said central region (13) comprises non-working sections and working sections, said non-working sections being smaller in section than the working sections.
14. An instrument according to claim 1 characterized in that said central region (13) comprises helical sections (16a) and rectilinear sections (16b).